

DETAILED ACTION

Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

Claim 4 has been amended as follow:

The laser device as set forth in claim 1, wherein said laser member includes the one or more semiconductor quantum dots and a base material retaining the one or more semiconductor quantum dots; said one or more semiconductor quantum ~~dot is~~ dots are made of any one of CuC1, CuBr, CdSe, CdS; and said base material is made of glass or alkali halide crystal.

Claim 5 has been amended as follow:

The laser device as set forth in claim 1, wherein said laser member includes the one or more semiconductor quantum dots and a base material retaining the one or more semiconductor quantum dots; said one or more semiconductor quantum ~~dot is~~ dots are made of InAs or InGaSb; and said base material is made of GaAs.

Claim 7 has been amended as follow:

The lasing method as set forth in claim 6, wherein said biexciton state in the one or more semiconductor quantum ~~dot~~ is dots are formed by irradiating the one or more semiconductor quantum dots with excitation light whose energy corresponds to said two-photon resonant excitation.

Response to Amendment

2. The Examiner acknowledges the amending of claims 1 and 6.

Allowable Subject Matter

3. Claims 1-9 are allowed.
4. The following is an examiner's statement of reasons for allowance:

Claims 1 and 6

Independent claims 1 and 6 are believed to be allowable over the cited prior art as they have been amended to incorporate allowable subject matter.

Shields and Masumoto'1993 in combination with Masumoto'1978 disclose a laser device and a lasing method similar to the claimed invention as recited in claims 1 and 6.

However, none of the cited prior art alone or in combination discloses "so as to directly form, without going through an intermediary of exciton state, a biexciton state in at least one of the one or more semiconductor quantum dots by the two-photon resonant excitation" as recited in claim 1 and "directly forming, without going through an intermediary of exciton state, a biexciton state in at least one of the one or more semiconductor quantum dots by two-photon resonant excitation" as recited in claim 6.

Shields discloses exciton creation means to create a biexciton state within at least one quantum dot, but fails to disclose a two-photon resonant excitation nor forming

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the biexciton state directly without going through an intermediary of exciton state.

Masumoto'1993 in combination with Masumoto'1978 discloses forming a biexciton state with a two-photon resonant excitation, but fails to disclose directly forming the biexciton state without going through an intermediary of exciton state.

Claims 2-5 and 7-9

Dependent claims 2-5 and 7-9 are also allowable as they directly or indirectly depend on claims 1 and 6.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YUANDA ZHANG whose telephone number is (571)270-1439. The examiner can normally be reached on Monday-Friday, 9:00am-5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jessica Stultz can be reached on 571-272-2339. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yuanda Zhang/
Primary Examiner, Art Unit 2828